

What is claimed is:

1. A 2-dimension channel coding system, taking signals  
inputed from various channel sources and re-  
organizing their access paths and sequence in a  
5 2-dimension order to enhance TV user's convenience  
in channel identification and selection. It consists  
of:
  - an input receiver to take instructions sent from  
a TV remote controller operated by a TV user.
  - 10 a micro-processor to process the instructions from  
input receiver based on the programs stored in the  
memory to make decision on TV channel selecting.
  - a memory module, which the data and programs needed  
for system operation are stored in, read from and  
15 written to.
  - a LAN module as signal receiver from web system or  
internet, and output to VGA display module for TV.
  - a tuner to receive broadcasting signals and output  
to VGA display module for TV.
  - 20 a VGA display module for TV, which takes signals from  
tuner or LAN module, and then outputs to TV sets.
2. The 2-dimension channel coding system as described  
in 1, of which the 2-dimension channel organization  
25 consists of the directory code channels in the 1<sup>st</sup>  
hierarchy and the folder code channels in the 2<sup>nd</sup>  
hierarchy.

3. The 2-dimension channel coding system as described  
in 1, of which the input receiver is an IR (Infrared  
Rays) or RF (Radio Frequency) receiver.
- 5 4. The 2-dimension channel coding system as described  
in 1, of which the LAN module is a standard LAN chip  
or LAN card used in personal computer industry.
- 10 5. The 2-dimension channel coding system as described  
in 1, of which the VGA display module for TV takes  
signals from tuner or LAN module, and outputs to TV  
sets in the standard TV input interface with audio,  
video and super VHS terminals.
- 15 6. The 2-dimension channel coding system as described  
in 1, of which the memory module contains the data  
as follows:
- (a) Operating system and execution programs.
- (b) Directory code and folder code table, which is a  
20 database containing all information about the valid  
channels.
- (c) Current Directory Code Channel XXX and Current  
Folder Code Channel YYY. They are parameters  
containing the code of currently played directory  
25 code channel and folder code channel respectively.
- (d) Cursor Position C, a parameter containing the  
folder code on which a cursor is placed when a folder

code window is shown.

(e) Directory/Folder Mode Flag DE, a parameter to indicate that the channel being played now is a directory code channel or a folder code channel.

5 (f) Window Show Up Flag W, a parameter to indicate if there is folder code window showing up in the TV screen.

7. The directory code and folder code table of the  
10 memory module as described in (b) of 6 contains the information as follows:

(a) All directory code channels and their frequencies at tuner or web address accessible through LAN module.

15 (b) All the folder code channels under every directory code channels.

(c) The frequency or web address of each folder code channel under a directory code.

20 8. A method to encode the TV channels in the 2-dimension order by re-organizing their access paths and sequence. The TV channels are arranged in 2 hierarchies, the directory code channels in the 1<sup>st</sup> hierarchy of fixed number of digits denoting major  
25 channels, and the folder code channels in the 2<sup>nd</sup> hierarchy of non-fixed number of digits denoting the sub-channels within a directory code channel.

9. The method to encode the TV channels in the 2-dimension order as described in 8, of which the directory code channels can be accessed by:
- (a) using the "channel up" and "channel down" function of the remote controller when TV is playing a directory code channel.
  - (b) directly enter the directory code in digits when TV is playing a directory code channel.
  - (c) when TV is playing a folder code channel, use "back" function to return to its directory code channel and then perform (a) or (b) described in 10.
10. The method to encode the TV channels in the 2-dimension order as described in 8, of which a "window" shows up in TV screen to display the folder code channels for TV users selection if there are folder code channels within this directory code channel.
11. The method to encode the TV channels in the 2-dimension order as described in 8, of which the folder code channels can be accessed by:
- (a) "Up", "Down", "Right", and "Left" function followed by "Enter" function, when a folder code window is shown on the screen.
  - (b) When the TV is playing a folder code channel, directly entering the folder code under the same

directory code.

(c) When TV is playing a directory code channel, only the folder code channels within this directory code channel can be selected by means of (a) or (b) described in 12.

12. The method to encode the TV channels in the 2-dimension order as described in 8, when the TV is playing a directory code channel, TV user has direct access to other directory code channels or the folder code channels within the currently played directory code channel.

13. The method to encode the TV channels in the 2-dimension order as described in 8 is applied on the currently existing TV systems.

14. The method to encode the TV channels in the 2-dimension order as described in 8 is able to take various channel sources including wireless broadcasting, cabled broadcasting, web system and internet and reorganize them as TV channels in 2 hierarchies denoted by the directory codes and the folder codes.